

Claims

1. A radio apparatus comprising a planar antenna structure with a first and a second plane, wherein both planes are arranged to act as a radiator plane and as a ground plane and the apparatus comprises means for interchanging the usages of the planes.

2. A radio apparatus of claim 1, further comprising at least one radio signal feed and at least one grounding feed to the first plane, and at least one radio signal feed and at least one grounding feed to the second plane.

3. A radio apparatus of claim 1, further comprising means for switching a radio signal to at least one feed of the plane acting as a radiator plane, and blocking the radio signal from all feeds of the plane acting as a ground plane.

4. A radio apparatus of claim 1, further comprising means for selecting the usage of planes on the basis of signal quality measurements.

5. A radio apparatus of claim 1, further comprising at least one sensor for sensing which side of the apparatus is covered and means for selecting the usage of planes on the basis of the sensor signals.

6. A radio apparatus of claim 5, further comprising sensors on different sides of the apparatus.

7. A radio apparatus of claim 1, further comprising means for selecting the usage of planes on the basis of the frequency of the radio signal.

8. A radio apparatus of claim 1, the planes comprising radiating elements having similar electrical properties.

9. A radio apparatus of claim 1, the planes comprising radiating elements having dissimilar electrical properties.

10. A method of changing an antenna pattern in a radio apparatus comprising a planar antenna structure with a first and a second plane, comprising: interchanging the usages of the first and second planes as a radiator plane and as a ground plane.

11. A method of claim 10, further comprising: performing signal quality measurements and interchanging the usage of planes on the basis of the measured signal quality.

12. A method of claim 10, further comprising: sensing which side of the apparatus is covered by at least one sensor and selecting the usage of planes on the basis of the sensor signals.

13. A method of claim 12, further comprising: performing measurements with sensors on different sides of the apparatus.

14. A method of claim 10, further comprising: interchanging the usage of planes on the basis of the used carrier frequency.